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March 22, 2006

**Via Federal Express**

Ms. Elizabeth O'Donnell  
Executive Director  
Public Service Commission  
211 Sower Boulevard, P.O. Box 615  
Frankfort, Kentucky 40602-0615

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MAR 23 2006

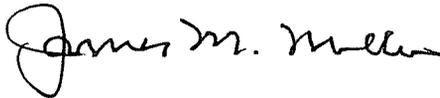
PUBLIC SERVICE  
COMMISSION

Re: **JACKSON PURCHASE ENERGY CORPORATION**  
PSC Administrative Case No. 2006-00045

Dear Ms. O'Donnell:

Enclosed are an original and seven copies of the response of Jackson Purchase Energy Corporation to the data requests propounded to it in the February 24, 2006, order of the Public Service Commission in the above-styled matter. Please note our appearance as counsel of record for Jackson Purchase Energy Corporation. I certify that a copy of this filing has been served this day on the persons shown on the attached service list.

Sincerely yours,



James M. Miller  
Tyson Kamuf  
Counsel for Jackson Purchase Energy Corporation

JMM/ej  
Enclosures

cc: G. Kelly Nuckols  
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PSC CASE NO. 2006-00045**

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**COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION**

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MAR 23 2006

PUBLIC SERVICE  
COMMISSION

**In the Matter of:**

**CONSIDERATION OF THE REQUIREMENTS )  
OF THE FEDERAL ENERGY POLICY ACT OF )  
2005 REGARDING TIME-BASED METERING, )  
DEMAND RESPONSE, AND INTERCONNECTION )  
SERVICE )**

**CASE NO.  
2006-00045**

**JACKSON PURCHASE ENERGY CORPORATION'S  
RESPONSE TO THE INITIAL DATA REQUESTS CONTAINED  
IN APPENDIX C TO PUBLIC SERVICE COMMISSION'S  
ORDER DATED FEBRUARY 24, 2006**

**March 23, 2006**

JACKSON PURCHASE ENERGY CORPORATION'S  
RESPONSE TO THE INITIAL DATA REQUESTS CONTAINED IN APPENDIX C  
TO THE PUBLIC SERVICE COMMISSION'S ORDER  
DATED FEBRUARY 24, 2006

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4 Jackson Purchase Energy Corporation ("JPEC") offers the following comments,  
5 observations and responses to the Public Service Commission's ("Commission") Order  
6 dated February 24, 2006 in Case No. 2006-00045, *Consideration Of The Requirements*  
7 *Of The Federal Energy Policy Act Of 2005 Regarding Time-Based Metering, Demand*  
8 *Response And Interconnection Service.*  
9

10 JPEC is a rural electric distribution cooperative, and is a member-owner of Big Rivers  
11 Electric Corporation ("Big Rivers"). Big Rivers is a rural electric generation and  
12 transmission cooperative ("G&T"), which owns generating assets, and purchases,  
13 transmits and sells electricity at wholesale. Its principal purpose is to provide the  
14 wholesale electricity requirements of its three distribution cooperative members  
15 ("Members"): Kenergy Corp. ("Kenergy"), Meade County Rural Electric Cooperative  
16 Corporation ("Meade County"), and JPEC. The Members in turn provide retail  
17 electric service to approximately 107,000 consumer/members located in 22 Western  
18 Kentucky Counties: Ballard, Breckenridge, Caldwell, Carlisle, Crittenden, Daviess,  
19 Graves, Grayson, Hancock, Hardin, Henderson, Hopkins, Livingston, Lyon, Marshall,  
20 McCracken, McLean, Meade, Muhlenberg, Ohio, Union and Webster.  
21  
22

23 Big Rivers and its Members have each filed separate responses for the Commission's  
24 consideration. However, given the policy-oriented nature of some of the data requests,  
25 Big Rivers and its Members have coordinated their responses to several of the data  
26 requests, and have often relied on the same or similar information in their responses.  
27  
28

29 Before responding directly to the information requests attached to the Commission's  
30 Order, JPEC, along with Big Rivers and its other Members, want to take this  
31 opportunity to provide these additional comments and observations to the Commission  
32 in order for the Commission to fully understand the perspective of Big Rivers and its  
33 Members with regard to the issues raised in this proceeding. JPEC requests that the

JACKSON PURCHASE ENERGY CORPORATION'S  
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4 Commission carefully consider these comments and observations as it makes its  
5 findings with respect to the Smart Metering and Interconnection Service standards.  
6

7  
8 As the Commission is well aware, costs for electricity in Kentucky are among the  
9 lowest in the country. Currently, in states that have recently pursued a course of  
10 deregulation, significant increases in electricity rates are expected this spring and  
11 summer. For instance, in the mid-Atlantic states of Delaware and Maryland and  
12 including the Washington, D.C. area, electric rates are projected to increase from 30  
13 percent to over 100 percent for certain rate classes. Obviously, in these regions of the  
14 country there is a keen interest in any measures that help to control energy costs  
15 including time-of-use rates and smart metering. However, in a low cost state such as  
16 Kentucky there is not much customer interest in these options. In fact, Big Rivers and  
17 its Members have regularly surveyed their commercial and industrial customers about  
18 their interest in a rate discount for off-peak usage only to find that there is some  
19 customer interest. However, little or no interest has been demonstrated when time-of-  
20 use rates have been offered as discussed in the Members' responses to Smart Metering  
21 1.  
22

23  
24 Not only is there little customer interest, but Big Rivers costs do not vary by time of  
25 day. Currently, Big Rivers takes most of its power under a wholesale contract with  
26 LG&E Energy Marketing ("LEM") and SEPA. The contract with LEM has a flat  
27 energy charge regardless of the time the power is taken. The contract with SEPA has a  
28 flat capacity charge regardless of the time the power is taken. Similarly, Big Rivers'  
29 wholesale contracts with its Members do not time differentiate costs. Thus, there is  
30 little incentive for Big Rivers or its Members to encourage load shifting behavior  
31 through time-of-use rates.  
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4 Another deterrent to the development of time-of-use rates is the fact that Big Rivers  
5 and its Members are member-owned cooperatives. As non-profit, member-owned  
6 enterprises, Big Rivers and its Members must have some assurance of being able to  
7 recover the costs associated with new and experimental programs. Given the lack of  
8 customer interest, the non-time-differentiated costs for power and the uncertainty of  
9 recovery of program costs, Big Rivers and its Members have not aggressively pursued  
10 time-based rate schedules and Smart Metering programs. As a consequence, Big  
11 Rivers and its Members have limited experience with the programs under consideration  
12 in this proceeding and therefore they can provide only limited information on the cost  
13 to purchase and operate the required equipment or the likely customer response to the  
14 programs.  
15

16  
17 With regard to the Smart Metering standard, Big Rivers and its Members have another  
18 concern that may not be universally shared by all of the utilities in Kentucky. As the  
19 Commission knows, a Smart Metering program requires a communications feedback  
20 loop to the customers to provide them current usage and cost information. However,  
21 the territory served by Big Rivers and its Members is a rural, sparsely populated area  
22 where the available communication systems may not be as robust as in the more urban  
23 areas of the state, and not as capable of supporting these communications. Big Rivers  
24 and its Members believe this distinction should be kept in mind as the Commission  
25 proceeds with its consideration and determination regarding the Smart Metering  
26 standard.  
27

28  
29 In conclusion, JPEC, as well as Big Rivers and the other Big Rivers' Members believe  
30 that the information presented above and in their responses to the information requests  
31 will lead the Commission in its considerations and determinations to the conclusion that  
32 a utility-specific approach, especially with respect to implementation of these  
33 standards, is warranted. That is, any determinations that the Commission makes with

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regard to Smart Metering and Interconnection Service should not be universally imposed on all utilities in the state but should carefully consider the specific circumstances encountered by each utility.

**Witness: Kelly Nuckols**

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**Item 1)** Provide a list of programs you offer at present or have offered at any time since the enactment of the Public Utilities and Regulatory Policies Act ("PURPA") that can be included under the definition of either time-based metering or demand response set forth in Section 1252 of EPAct 2005. Include a brief description of each program, the relevant tariffs (if applicable) and a cite to the Commission case number in which the program was approved (if applicable).

**Response)** At the present time, JPEC does not offer either time-based metering or a demand response tariff. JPEC previously offered a Time-of-Day rate for industrial accounts which provided reduced rates for higher demand usage from 10:01 p.m. to 6:00 a.m. (See the attached tariff, which was approved by the Commission effective January 1, 1995). To the best knowledge of the present managerial staff at JPEC, this rate was subsequently terminated due to a lack of interest from its member-customers, and was never actually used by any member-customer.

**Witness: Kelly Nuckols and Chuck Williamson**



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**Item 2)** Provide a general discussion of the types of time-based metering or demand response programs that are possible using existing technologies and a specific discussion on which of these programs, if any, are feasible for current implementation in Kentucky.

**Response)** As discussed in the prefatory comments, JPEC has limited information readily available on the existing technologies and the programs that are feasible for current implementation in Kentucky. The most relevant cost information Big Rivers and its Members can presently provide for the Commission's consideration of the Smart Metering standard is the current metering system that Meade County is installing.

Meade County is presently in the process of installing Hunt Technologies TS2 Automated Metering Interface (AMI) system. Currently the system has been installed on 6 of Meade County's 16 substations. The system includes 25,668 meters. The cost estimate for total implementation is \$2.8 million with an annual operating cost of approximately \$46,000. To make the system compatible with time-of-use rates additional investment would be required. One of the primary benefits that Meade County will derive from the system is the ability to automate its meter reading program. At this time, Meade County is committed to the installation of this system and has indicated that it would be cost prohibitive to switch this system out to install a different or an enhanced system in order to implement a more sophisticated Smart Metering program.

**Witness: Kelly Nuckols, Chuck Williamson and Tracy Bensley**

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**Item 3)** Provide, in narrative form, with all relevant calculations, workpapers and assumptions included, what you see as the potential impact of implementing the Smart Metering standard included in Section 1252 of EPAct in Kentucky. At a minimum, the response should address the costs of implementation, financial impact on the utility, who should bear the costs of implementation, and possible rate making and rate treatment issues.

**Response)** As discussed in the prefatory comments, Big Rivers and its Members have limited information readily available on the existing technologies and the programs that are feasible for current implementation in Kentucky. However, based on the Meade County experience discussed in the previous response, the investment cost of the metering system is approximately \$109 per meter with an annual operating cost of nearly \$2 per meter. As discussed in the previous response, this level of investment while significant is still not adequate to implement a time-of-use pricing scheme much less a Smart Metering program. Recently, the Ontario Energy Board released its Smart Meter Implementation Plan. In the plan at page 28, it estimates the smart metering cost for a new single-phase residential meter and communication system at approximately \$250 per installed meter. The Ontario Board's Smart Meter Implementation Plan is available at its website [www.oeb.gov.on.ca](http://www.oeb.gov.on.ca). Big Rivers and its Members do not have information specific to Big Rivers and its Members readily available to provide reliable estimates of how much it would cost to implement a system that would accommodate critical peak pricing or real-time pricing as suggested by the EPAct 2005. Clearly though the financial impact on JPEC would be substantial and as a cooperative would necessitate a regulatory mechanism for the timely recovery of these costs.

With regard to who should bear the cost of implementation of a Smart Metering program, the answer depends on the benefits that would actually accrue. For instance,

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if there is limited penetration of the program and as a result only a few customers realize some savings on their bills, then the cost should be borne by those customers. However, if there is a more widespread penetration and it becomes possible to identify not only some cost savings but also improved system efficiency and reliability, then it becomes more reasonable to spread the costs to implement the program among a larger group of customers, say a rate class of customers, or some subset of customers, or even across all customers.

At this time, JPEC cannot offer additional guidance to the Commission with regard to its consideration and determination of the Smart Metering standard other than to suggest the possibility of a pilot or trial program to develop better estimates of costs, to better understand customer responses, and to determine the extent of the benefits. If after careful consideration the Commission determines that it is appropriate to implement the Smart Metering standard in Kentucky, then Big Rivers and its Members strongly recommend that they be permitted to develop and conduct a pilot or trial program prior to implementing a more broadly based program.

**Witness: Kelly Nuckols and Chuck Williamson**

JACKSON PURCHASE ENERGY CORPORATION'S  
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4 **Item 4)** Provide a general discussion of what you perceive to be the pros and  
5 cons of implementing a Smart Metering standard in Kentucky and the policy issues that  
6 you believe the Smart Metering standard presents for the Commission.

7  
8 **Response)**

9 PROS

- 10 • A Smart Metering system will likely support an automated meter reading  
11 program resulting in some operational cost savings.
- 12 • A Smart Metering system that makes electricity cost and usage information  
13 readily available to the customer may improve the level of customer satisfaction  
14 of those who utilize the information.
- 15 • A Smart Metering system will likely reduce the potential for energy theft with  
16 an immediate benefit to the utility until its next rate case and then a benefit to  
17 customers going forward.
- 18 • If customers respond to the information and price signals communicated through  
19 a Smart Metering program, there may be a reduced need and or delay for  
20 additional generating capacity as well as generation and environmental costs.
- 21 • If customers respond to the information communicated through a Smart  
22 Metering program, there may be improved system efficiency and reliability.
- 23 • Once the meters have been installed, the accuracy of meter readings should  
24 improve with the instances of estimated bills decreasing.
- 25 • Once the meters have been installed, the utility can more easily verify if and  
26 when service is restored after an outage.
- 27 • If the installed Smart Metering system is based on a real-time two-way  
28 communication (i.e. data is transferred to and from the meter by the utility),  
29 then more enhanced services such as customer display, integration with load  
30 control systems, interface to smart thermostats, voltage monitoring, and remote  
31 cut-off can be provided for incremental costs.  
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2 CONS

- 3       • The cost to implement an effective Smart Metering program will be substantial  
4       and if there are not concomitant cost reductions and system benefits then the  
5       utility, and ultimately its customers, will incur a significant financial hardship.  
6       • If the existing metering systems have to be replaced prematurely, there will be  
7       undepreciated book value of retired equipment that must be accounted for.  
8       • There must be some assurance that the current and future communications  
9       infrastructure will support the Smart Metering program now and in the future.  
10      • If there are additional changes to Daylight Savings Time in the future, it will  
11      result in unanticipated reprogramming costs for a Smart Metering program.  
12

13  
14 The regulatory challenge that the Commission has before it is to consider and make an  
15 affirmative determination that the benefits of implementing a Smart Metering program  
16 clearly outweigh the costs. JPEC would like to reiterate its concern that given the  
17 limited information about the cost, operation and customer response to a Smart  
18 Metering program the Commission should not determine that the statewide  
19 implementation of a Smart Metering program is required or that it should be  
20 implemented immediately by all utilities. Big Rivers and its Members believe that if  
21 the Commission determines that a Smart Metering program should be adopted, then a  
22 more reasonable approach to implementation for Big Rivers and its Members is to  
23 pursue a pilot or trial program first. This will allow for a realistic assessment of costs  
24 and benefits to be developed to determine an optimal strategy for implementation of a  
25 Smart Metering program on the Big Rivers system.  
26

27  
28 Another regulatory policy issue that confronts the Commission is the recovery of costs  
29 for implementing a Smart Metering program. An integral part of a Smart Metering  
30 program – pilot or otherwise – should be a regulatory mechanism for the equitable  
31 recovery of associated costs. A cost recovery mechanism similar to that used for  
32 demand-side management programs may be appropriate.  
33

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**Witness: Kelly Nuckols, Chuck Williamson and Tracy Bensley**

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4 **Item 1)** Provide, in narrative form, with all relevant calculations, workpapers  
5 and assumptions included, what you see as the potential impact of implementing the  
6 Interconnection standard included in Section 1254 of EAct in Kentucky. At a  
7 minimum, the response should address the costs of implementation, financial impact on  
8 the utility, who should bear the costs of implementation, and possible rate making and  
9 rate treatment issues.

10  
11 **Response)** JPEC is a distribution cooperative which receives its wholesale power  
12 requirements from Big Rivers. Big Rivers is a G&T, cooperatively owned by its three  
13 member distribution cooperatives, which are, in turn owned by their retail member  
14 customers. The member distribution cooperatives own and operate the electrical  
15 distribution systems to which their retail member customers are connected, and from  
16 which they take retail electrical service. Big Rivers owns and operates the electrical  
17 transmission system to which its member distribution cooperatives are connected and  
18 over which they receive their wholesale electricity purchases.

19  
20  
21 Electric cooperatives differ from investor-owned electric utilities in that electric  
22 cooperatives are not-for-profit, member consumer owned utilities that have no  
23 shareholders to absorb the cost of new programs. For this reason, the total costs from  
24 any implementation of the EAct 2005 in Kentucky which would affect Big Rivers or  
25 its Members should be borne by the distributed resource ("DR"), who also stands to  
26 benefit if any profits are realized. No DR project should be subsidized by non-  
27 participating members, either directly or indirectly through costs incurred by the  
28 member owned electric cooperative. To insure against subsidization, the DR should  
29 bear all costs of interconnection, including all initial implementation cost, the utility's  
30 administrative cost of billing and inspection, and the initial and ongoing cost of testing  
31 and maintaining the protection systems described in the IEEE 1547 standard.  
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4 One cost impact of the possible implementation of the EAct 2005, and one that rural  
5 electric cooperatives are especially sensitive to given that their customers are spread  
6 out over a large area, is the cost of upgrading distribution lines. An electric  
7 distribution line that is sized sufficiently to serve a sparsely populated area would have  
8 no incremental capacity to handle a proposed DR without costly upgrades. Any  
9 regulation proposed to implement the EAct in Kentucky should require that an  
10 engineering study be performed at the expense of the DR to determine the adequacy of  
11 the distribution line to handle the proposed generation. If there is generation net of the  
12 local load that will be absorbed into the distribution system, and the host distribution  
13 line is not sized to safely handle the generation, then all system improvements required  
14 to handle the generation should be the expense of the DR, and the cost of these system  
15 improvements should be assured before the interconnection is allowed.  
16

17  
18 Because Big Rivers' member cooperatives' wholesale electric requirements are largely  
19 supplied under all requirements wholesale contracts with Big Rivers, if the EAct is  
20 implemented by Kentucky, all sales of generation should be between the DR and Big  
21 Rivers to maintain the integrity of those contracts. Power that enters the distribution  
22 grid should be netted out of the wholesale meter that measures the wholesale  
23 consumption of the host member cooperative, and the generation received into the  
24 distribution grid should be purchased from the DR by Big Rivers at Big Rivers'  
25 avoided cost of generation. Big Rivers' avoided cost of generation should be defined  
26 as its variable operational and maintenance cost. At such time that Big Rivers is in  
27 need of additional generation, the avoided cost would also include the cost of the new  
28 generation.  
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31  
32 **Witness: Kelly Nuckols and Tracy Bensley.**  
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JACKSON PURCHASE ENERGY CORPORATION'S  
RESPONSE TO THE INITIAL DATA REQUESTS CONTAINED IN APPENDIX C  
TO THE PUBLIC SERVICE COMMISSION'S ORDER  
DATED FEBRUARY 24

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**Item 2)** Provide a general discussion of what you perceive to be the pros and cons of implementing an Interconnection standard in Kentucky and the policy issues that you believe the Interconnection standard presents for the Commission. Include discussion of the issues that must be addressed to comply with IEEE 1547.

**Response)** As noted above, as a member-owned and member-driven electric utility, JPEC weighs the impacts of the EAct 2005 interconnection standard based upon the best interests of its member-owner retail consumers. Even without implementation of the EAct 2005, Big Rivers and JPEC are willing to assist any retail member consumer with the ability to utilize available resources to its betterment through electric generation. However, they must ensure that such generation does not place a burden on the retail member's neighboring member consumers, or place the consumer or its neighbors, or the transmission and distribution system on which they rely, in an unsafe situation. Such generation must also be cost effective and environmentally friendly, and any DR interconnection must be implemented in a way that protects the safety of the member consumer, its neighbors, and utility workers, and that protects the service quality and reliability of Big Rivers and its Members' systems.

While Big Rivers and JPEC will assist DRs that meet the above criteria, they have compared the pros and cons of implementing the EAct 2005 interconnection standard in Kentucky and have found that the cons far outweigh the pros. More specifically, Big Rivers and JPEC believe that forced implementation of the EAct interconnection or any similar standard will be at the expense of safety and electric service quality to those in proximity to a DR.

Safety and reliability are significant concerns with the possible implementation of the EAct 2005. The IEEE 1547 standard recognizes that electric power systems were not designed to accommodate active generation and storage at the distribution level, and it

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4 attempts to develop technical requirements for DR interconnection that address safety,  
5 performance, operation, testing, and maintenance considerations. The standard  
6 describes systems that a DR must have in place and in good working order to assure  
7 the quality of the generation, its safe and timely shut down during times of distribution  
8 line faults, and the timely disconnection of the DR from the distribution system during  
9 faults on the DR system. These systems are essential for the reliability and quality of  
10 service of the distribution grid, and for the safety of the electric utility workers during  
11 times of distribution line faults. Therefore, any implementation of the EAct 2005  
12 must effectively require compliance with the IEEE 1547 standard to ensure not only  
13 that the described protection and monitoring systems will be installed, but also that  
14 those systems will be routinely inspected and maintained.  
15

16  
17 However, even with the IEEE 1547 standard, safety would still be a concern. Electric  
18 utilities specialize in the generation and delivery of electricity, and devote a tremendous  
19 amount of time and expense to training their electrical workers to work safely in the  
20 generation and delivery of electricity. In spite of the utilities' best efforts, however,  
21 some electrical accidents still occur. Given that the primary function of many DRs will  
22 not be the generation and delivery of electricity, there is a concern that adequate  
23 attention will not be given to electrical safety and safety training, increasing the  
24 likelihood of electrical accidents.  
25

26  
27 Additionally, the IEEE 1547 standard is not comprehensive. It does not, for example,  
28 indicate the maximum capacity of DR generation that can be interconnected to any  
29 particular distribution system, it does not apply to interconnections to network systems,  
30 and it only provides general statements as to the necessary performance of DR  
31 generation and protective equipment, meaning additional tests or standards may be  
32 required to ensure safety and reliability. The IEEE 1547 standard also does not  
33 address the methods used for performing electric utility impact studies of DR or

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4 associated tariff issues, which are additional issues that must be addressed with any  
5 possible implementation of the EAct 2005.  
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7 Moreover, electric utilities have state and federal regulatory agencies to prescribe  
8 safety and reliability standards and to ensure that proper attention is given to safety and  
9 maintenance needs. However, even with those safeguards in place, large transmission  
10 outage investigations often reveal that maintenance has been underperformed. The  
11 price that a DR would realize from its generation (i.e., the avoided cost to the  
12 interconnected utility) will be very small. This is especially true in this state since  
13 Kentucky is one of the lowest cost electric power producers in the country. With the  
14 cost pressure of a low avoided cost, DR's will be under great pressure to cut costs  
15 where possible and will be greatly tempted to under emphasize their safety and  
16 maintenance needs at the expense of safety and distribution grid reliability or quality of  
17 service.  
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20 **Witness: Kelly Nuckols and Tracy Bensley.**  
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**Item 3)** Identify any customer with on-site generation that is currently connected to your distribution system. Provide the customer's maximum demand in 2005 and current generating capacity.

**Response)** JPEC has no customers with on-site generation that are interconnected to its distribution system.

**Witness: Kelly Nuckols and Tracy Bensley**